

GET ACQUAINTED WITH YOUR CAR

You Should Know How the Power Is Put to Work.

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A power to move this old world may be yours, your strength like this Hercules guy, but if you can't harness it, put it to work, you'll never illumine the sky, which is only another way of saying that power undirected is a useless thing; so with power developed by your engine, it is necessary to couple it to the driving wheels or the car to wheels.

The mechanism by which this is accomplished is known as the transmission. It includes the clutch, the change gear, universal joints, drive or propeller shaft, differential gears and finally the axle to which the drive wheels are fastened, each of which has a separate function and needs a varying amount of attention. It would be a good idea right now to get out the instruction book for your car for reference while you are studying these important parts.

First, behind the engine is the clutch, the means of connecting and cutting off the engine from the running gear or transmission without stopping the motor or shifting into neutral gear. You learned to operate this first thing in driving and understand that it is about the most used part. It may be a cone or multiple disk clutch, or in case of the Ford a planetary gear affair which is both clutch and speed gear. Your car chart will show which it is.

The cone clutch consists of an internal cone built into the flywheel and an external cone attached to the gear-drive shaft and the two are pressed together by a shift spring, friction causing them to move together except when the pedal is pressed to release the parts. The multiple disk where there are many thin metal disks, sometimes with fabric facings, are pressed together by a shift lever. These run in oil or dry. You will find quite full instructions for their care in the book. Care in operation will prevent wear of parts through rubbing of motor and car and will help give greater life mileage if there is no sliding of tires through sudden starting and stopping.

The cone and shafts are closely connected to the clutch, consists, with the exception noted for the Ford and one or two with electric transmission, of parallel shafts upon which are mounted different sized gears operated by a shift lever and sliding on the other. Your gear shift lever moves the sliding gears to make different sets mesh teeth. The drive shaft motion may be too high or too low, so you shift together a pair, say 20 to 30 teeth, which would reduce the speed to one-fourth, or low speed. The next set would be say 66 and 24 teeth making practically half speed, and a 100-tooth gear would travel twice around while the 66-tooth gear travelled once around. The high speed is produced by coupling the clutch shaft and drive shaft, together without the intervention of gears. Study the system of lubrication given in the book and do not let any one mislead you to vary from it. The manufacturer knows!

Because the engine sits low on the frame and is higher than the rear axle, a universal joint is introduced next in line to take up the angle and to provide for the variation in angle when the car jolts on the road and springs go up and down. It is of the double-clover, or ball and socket type, and requires little attention other than cleaning and lubrication, according to the rule of the book. Sometimes there is a second universal joint on the lower end of the drive shaft to give smoother operation. The drive shaft runs in a tube, known as the propeller shaft, whose function is to keep the drive shaft from coming from twisting. The differential gear, which comes next, is a rather complicated arrangement designed to permit the wheels to travel at varying rates of speed around curves and over road unevenness, to keep tires from wear through sliding. There are eight gears in the assembly. The first is attached to the drive shaft and operates a ring gear, called the crown gear, which is attached to a cage within which are four pinions, or small gears, set at right angles, and which are meshed with gears attached to the two ends of the axle. When the car is running the entire assembly operates together until one wheel has a different traction pull, because of a curve or bump in the road, when the gear attached to its axle will revolve at a different speed and the pinions take up this difference, hence the name differential. It is almost impossible for one to understand the operation without seeing it. The instructions and illustrations of the manufacturer's book are as good as anything, but the owner should make up to garage men until he can see just how it works, for it really is a wonderful device.

The axles, as stated, are in two halves, so that the wheels may operate at varying speeds, since when turning a corner the outer wheel travels a much further distance than the inner, and if they were locked together one or the other would scrape over the road, to the ruin of the tires.

The differential assembly has another function, that of reducing car speed in proportion to that of engine and drive shaft. If the outer edge of the tire measures nine feet and the wheels revolve at engine speed, or about 1,000 revolutions a minute, it would give a speed of 9,000 feet a minute, or almost two miles. This would be too fast for anything but a racing car. So the driving shaft gear usually has about one-fourth as many teeth as the driven gear, producing for 1,000 revolutions a minute of engine 250 revolutions a minute of the wheels.

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C. R. KEESLING.

C. R. Keesling, president of the Davis Motor Corporation, 1748 Broadway, who has just returned from the factory at Richmond, Ind., says that production conditions are much improved and shipments of both the open and closed models will now come through in good numbers.

"Factory allotment for the coming year for the Davis Motor Corporation is very satisfactory and will allow us to take care of both our wholesale and retail sales," he continues.

"Open models are built along lines



L. M. KEESLING.

which are very attractive, with plenty of power and speed, strong frame, easy riding springs, etc. There is full grain leather upholstery, either black or Spanish brown. The closed models are upholstered in silk velour and blue broadcloth. The closed models have plenty of power to carry them over the country roads as easily as idling down Fifth avenue on a shopping tour. All models are carried on a strong frame, which means freedom from body squeaks and other noises after the car has been in use for some time."

BIG INCREASE IN REGISTRATION

Interesting Figures for Entire Country Show Great Popularity of Automobile.

Cheer up, Mr. Strap-Hanger, you've got a seat coming. And not very far off either; maybe just a year hence. According to the predictions of statistical experts there'll be one automobile to every two families in the United States by January, 1921. If you are not a member of one of these families there will be room in the street cars.

Statistics of the B. P. Goodrich Rubber Company, who have just completed a count of the motor vehicles of America, are looking forward conservatively to 10,000,000 cars in 1921. This means approximately one car to every ten persons, or figuring three and one-half persons to a family one car to every two households. Your chances of having a car in the family are therefore 50-50—one in two.

The Goodrich count on automobiles and trucks now in operation is based on official figures from every State in the Union. The registration of motor vehicles for 1919 was 7,555,259 and for the year 1918 was 6,023,695—an increase of 1,531,564—a gain of 25 per cent. The increase of 1918 over 1917 was 23 per cent.

All dealer and motorcycle registrations have been carefully deducted. The figures present the first complete authentic report.

The registration by States for both

1918 and 1919 and the percentage of increase in each State follow:

State	1918	1919 Increase	Pct. of Increase
Alabama	46,155	62,000	34.3
Arizona	22,875	25,000	9.3
Arkansas	41,658	45,400	8.9
California	237,878	441,101	86.5
Colorado	86,000	115,100	32.5
Connecticut	84,802	105,419	24.2
Delaware	12,955	15,000	15.8
Florida	47,858	58,350	22.1
Georgia	96,100	124,826	29.9
Idaho	22,232	46,462	109.9
Illinois	288,142	478,459	65.7
Indiana	221,500	277,265	25.3
Iowa	202,500	242,900	20.0
Kansas	153,552	225,225	47.3
Kentucky	63,894	87,784	37.4
Louisiana	78,750	102,000	29.1
Maine	13,475	15,000	11.3
Massachusetts	193,497	250,800	29.6
Michigan	261,527	346,218	32.4
Minnesota	44,875	51,324	14.3
Mississippi	78,146	104,353	33.5
Missouri	40,600	48,000	18.0
Montana	197,486	254,167	28.7
Nebraska	203,727	257,790	26.5
Nevada	51,500	62,500	21.5
New Hampshire	175,270	197,500	12.6
New Jersey	24,901	30,600	23.0
New Mexico	16,881	23,000	36.2
New York	1,100,000	1,300,000	18.2
North Carolina	71,847	91,100	27.3
North Dakota	67,824	100,000	47.5
Ohio	71,201	106,152	49.1
Oklahoma	417,400	611,500	46.2
Oregon	128,200	161,200	25.8
Pennsylvania	46,000	79,242	72.1
Rhode Island	25,752	41,485	61.5
South Carolina	42,000	60,000	42.9
South Dakota	86,121	102,701	19.3
Tennessee	175,900	220,100	25.1
Texas	250,301	320,100	27.9
Vermont	27,504	35,144	27.8
Virginia	14,100	18,100	28.3
Washington	22,549	28,800	27.7
West Virginia	17,500	22,000	25.7
Wisconsin	136,144	175,000	28.5
Wyoming	16,150	21,212	31.3
Total	6,023,695	7,555,259	25.0

*Denotes States in which registration for few days of December had to be estimated.

The race between New York and Ohio for supremacy in number of registrations has turned decidedly in favor of New York, the Empire State leading by a comfortable margin, the percentage of increase, too, being greater.

An analysis of the figures discloses



Business men are interested in a motor truck that has a real factory behind it.

That is the only way we can explain the splendid reception Gary Trucks have received since we made our announcement a week ago that we have become Gary distributors.

Furthermore, we have found business men interested, too, in our 24-hour service which insures them that Gary Trucks will remain constantly in operation.

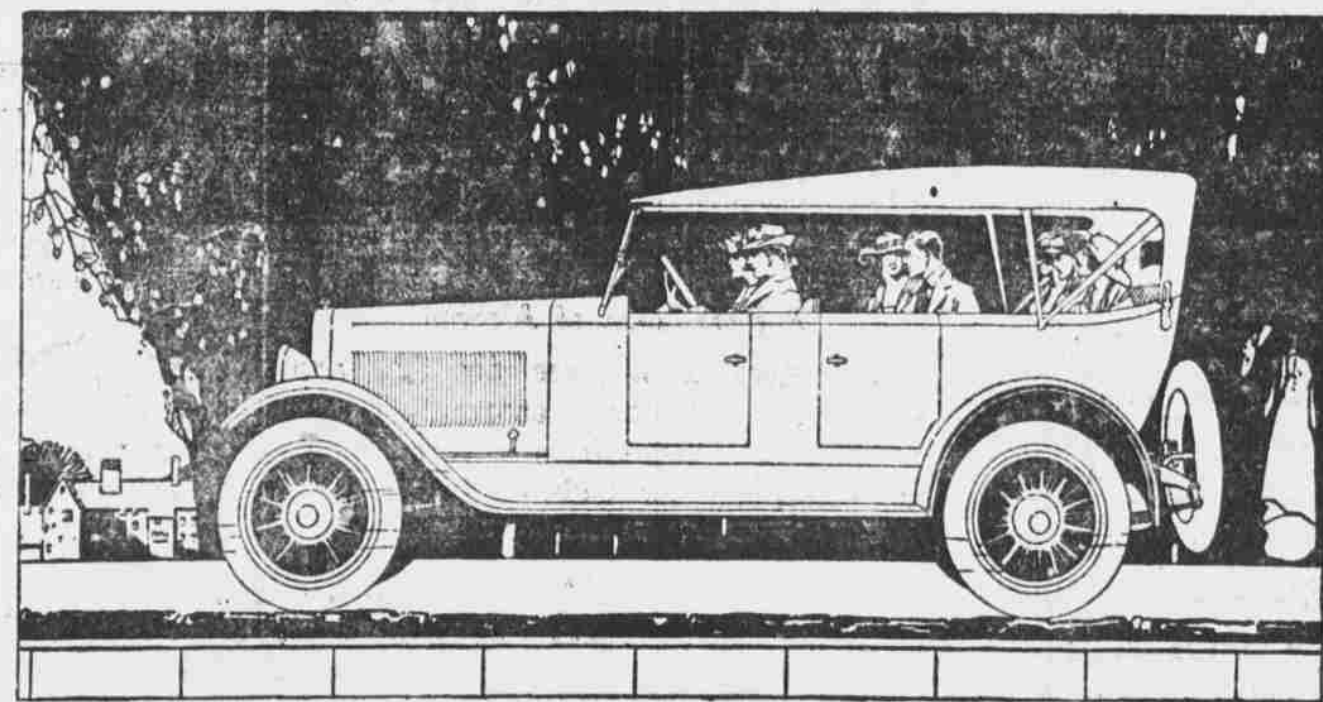
We have an important message for every man who has a hauling problem. Let us discuss yours and apply the remedy.

Gary Trucks are made in 5 sizes—1-1 1/2-2 1/2-3 1/2 and 5 tons.

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CHANDLER SIX Famous For Its Marvelous Motor



Europe Welcomes The Chandler Six

NOW and then you read something about "French style and line" in automobiles, or perhaps it's "the newest English idea." And some folks have gone across to get the newest suggestions.

Europe hasn't built automobiles for five years and Europe is crying for new cars and good cars.

America's style is Europe's style now.

The Chandler Six, popular in many other countries for years but kept out of Europe the past three years because of war-time prohibition of shipments, is welcomed everywhere in Europe now,—welcomed for the excellence of its performance, and quite as much for the beauty of its styles of body.

The Chandler, represented in the British Isles by Messrs. H. G. Burford & Company, Ltd., of London, was exhibited by that old established English automotive house, at the great Olympia Motor Show,

and was "quite the sensation of the show," says a London cable. "Three hundred and seventy Chandlers were sold in two days."

Apparently England is greatly pleased with America's best style in motor cars.

The Chandler Offers Highest Quality At The Fairest Price

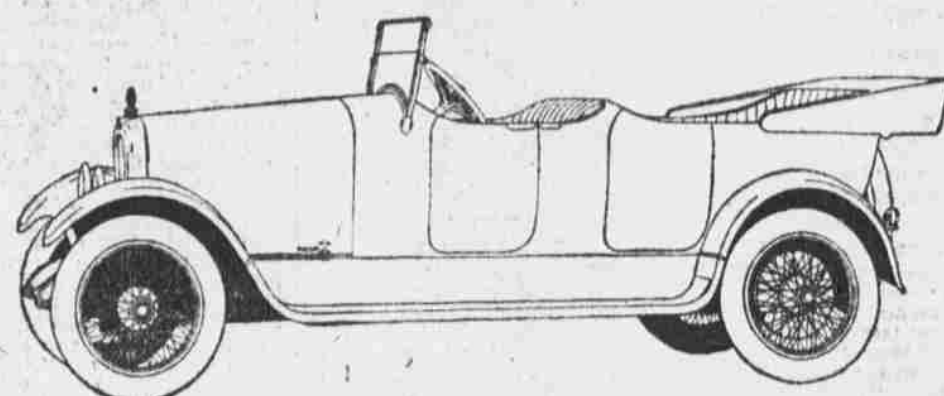
SIX SPLENDID BODY TYPES

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ranty and protection as if the car had never been run.

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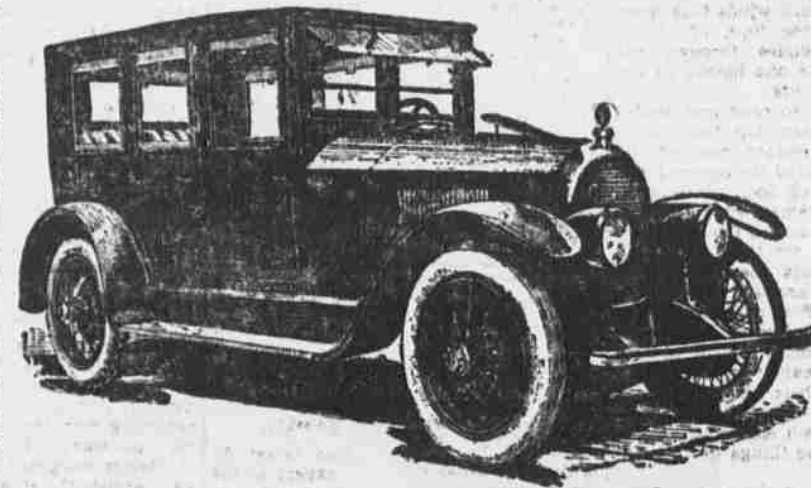
This special sale includes four, five and seven passenger models of 1916-1917, 1918, 1919 series, and a few closed cars, limousines, broughams, town cars, sedans.

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